

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch

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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:**Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-003671**Date Inspected:** 25-Aug-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 2200**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 730**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** Li Yan Hua**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** OBG/T0wer**Summary of Items Observed:**

Caltrans Quality Assurance (QA) Inspector Roscoe Dixon arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China to periodically monitor welding and Quality Control (QC) functions. While on site the QA Inspector observed and or discovered the following.

Quality Assurance (QA) Inspector Dixon was present to monitor activities associated with the Production Monitoring Test (PMT) of Orthotropic Box Girder (OBG) Deck Panel U-rib welds representing Deck panels DP438-001 and DP444-001.

The 5 closed rib panel was monitored on Gantry #2.

After MT of the tack welds was accepted by ZPMC Level II MT Technician, Bo Tin Rui, the three ribs (six welds) were simultaneously welded to the simulated deck plate in the horizontal groove (2G) welding position on (1) single steel plate. The Welding Procedure Specification (WPS) used was WPS-B-T-2342-U1(Urib)-4. It is a combination procedure using gas metal arc welding (GMAW) for the root pass and submerged arc welding (SAW) for the cover or fill pass.

The filler metals used were verified to be as specified on the WPS; 1.4 mm diameter, ER70S-6 (JM-56) for GMAW and 4.8 mm diameter EH14K (H14) for SAW.

During the test, QA Inspector Dixon recorded the parameters of amperage, voltage, and travel speed on the U-Ribs

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PMT Inspection Sheet, dated 08-26-2008, for both welding processes. The name of the gantry operator and each of the six welding operators' identification numbers were also recorded on the U-Ribs PMT Inspection Sheet. ZPMC Certified Welding Inspector (CWI), Li Yan Hua and ABF QA Inspector Mr. Huang Wen Guang were present during welding.

After ZPMC Certified Welding Inspector (CWI), Sun Bo and ABF QA Inspector Huang Wen Guang performed visual inspection on the welds. The Quality Assurance (QA) Inspector Dixon also performed random visual inspection of the GMAW tack welds, GMAW root pass and the SAW cover pass, items observed appear to comply with project specifications. Following completion of the welding ZPMC QC CWI Inspector Li Yan Hua marked a 500 mm length of the welds as being the areas that are to be representative of this PMT test.

QA Inspector Dixon observed ZPMC NDE inspector Mr. Xue Hai Rong performing ultrasonic testing on the partial penetration evaluation of each of the six welds in the areas where Sun Bo had marked for PMT testing. Following Mr. Rong's acceptance the QA Inspector Dixon marked a total of 15 locations where macroetch samples are to be obtained.

ZPMC then cut and prepared the macroetch samples. ZPMC QC CWI Inspector Mr. Li Yan Hua, ABF representative Mr. Chang Bao Qian and Caltrans QA Inspector Dixon visually inspected these macroetch samples and documented their acceptance on the ZPMC "Production Monitoring Test Plate Inspection Report sheet dated 08-26-2008, items observed by the QA Inspector Dixon appear to generally comply with project specifications.

The QA Inspector recorded information for all fifteen PMT specimens on an Excel spreadsheet titled "SAS OBG PMT Macroetch Log" and a copy of this file is posted on the Caltrans "Team China" internal common drive which is accessible to all Quality Assurance personnel including Task Leaders and Structural Materials Representatives.

### Tower Bay 1

The QA Inspector observed the Flux Cored Arc welding (FCAW) Process with an automatic Carriage welding machine. The in process welding of longitudinal stiffeners to Skin plate(B) was being performed utilizing WPS-B-T-2332-Tc-5-F.

The QA Inspector periodically observed ZPMC qualified and approved welding operators ID#'s 60261,040457,and 048378 welding at this station. QA Dixon also observed CWI Inspector Xu Le Feng, along with two ABF QC personnel and various ZPMC CAWI personnel monitoring the the welding being performed in the welding shop.

(1) ABF QC, (2) ZPMC QC and (2) ZPMC QC Total= 8

QA Inspector observed ZPMC performing MT on longitudinal stiffener to skin plate weld Joints (4) personnel at welding station

Total personnel in Tower Bay # 1 performing other task such as grinding moving material and milling =7

### Tower Bay 2

Skin E QA Inspector observed FCAW welding longitudinal stiffener to skin plate weld Joints

(4) Welders

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(3) ZPMC QC (2) preheating

Total personnel in Tower Bay # 1 performing other task such as grinding moving material and Etc. =10

All other shops Idle.

### Summary of Conversations:

As noted within the report shown above.

### Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Ady Velasco, (818) 292-0659, who represents the Office of Structural Materials for your project.

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<b>Inspected By:</b>	Dixon,Roscoe	Quality Assurance Inspector
<b>Reviewed By:</b>	Lanz,Joe	QA Reviewer

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